

Work Order ID /124889

124889

Page 1

Thursday, September 25, 2014 1:09:25 PM

Item ID: D407-667-205RLC

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Aft Crosstube - High 407

Start Date: 9/25/2014 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: MLJ Date: 14-09-25

Tooling:

Date:

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
----------	--------------

D407-667-245	Rev F/DEO
--------------	-----------

100

Document Control
DOCUMENT CONTROL

0.00

54

100

DC

Memo

0.00

DAS
66
9-89

Doc.Control -USB or Paperwork

Photocopy bluefile and create labels as per PPP D407-667-205 CHG008

DEC 30 2014

MLJ 14-12-05

110

Pick Kit
Packaging

0.00

110

Packaging

Memo

0.00

Packaging

TW 14-10-16

120

BENDING MACHINE - CROSSTUBES

0.00

120

CNC Bend 1

Memo

0.00

CNC Delta 100 Bender

1-Bend tube as per Dwg D407-667-245 using CNC bender program 407 Aft and Folio 21

TW 14-10-16

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Item ID: D407-667-205RLC

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N900040100Setup Start ***NS1***

Revision ID:

Item Name: Aft Crosstube - High 407

Stop ***NS2***Start Date: 9/25/2014 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	QC15- Crosstube Dimensional Check	0.00							
130									
QC	Memo	0.00							
Quality Control									

DAS
03
8-88

12/14-10-20

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Item ID: D407-667-205RLC

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N900040100Setup Start ***NS1***

Revision ID:

Item Name: Aft Crosstube - High 407

Stop ***NS2***

Start Date: 9/25/2014 Start Qty: 1.00

1

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***
Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	Crosstubes	0.00							
140									
Crosstubes									
Crosstubes	Memo	0.00							
	***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING***** , VERIFIED BY: <u> </u> *****								
	1-Drill pilot holes in tube using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Drill all (3) top holes. Holes facing inboard. Drill and Ream all holes in tube to finish size using drill Jig DT8583 & DT8584 as per Dwg D407-667-245								
	***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING***** , VERIFIED BY: <u> </u> *****								
	2- Drill fwd rivet holes using drill Jig DT8787 fwd as per Dwg D407-667-245. Note: FWD side has 3X top holes facing inboard.								
	3- C'sink holes as per dwg D407-667-245. Allow rivet to sit below surface to compensate for paint.								
	4- Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins. Drill ONLY 2 top holes ONLY plug most bottom hole to prevent accidental drilling. Drill holes and ream using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Drill only the top (2) holes. Drill & ream the top (2) holes to finish size using drill Jig DT8583 & DT8584 as per Dwg D407-667-245								
	***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING***** , VERIFIED BY: <u> </u> *****								
	5-Drill aft rivet holes using drill Jig DT8787 aft as per Dwg D407-667-245.								

DL

14/10/22

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Item ID: D407-667-205RLC

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N900040100

Setup Start *NS1*

Revision ID:

Item Name: Aft Crosstube - High 407

Stop *NS2*

Start Date: 9/25/2014 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	Drill only the top (2) holes. ***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING***** VERIFIED BY: <i>[Signature]</i> ***** 6- C'sink holes as per dwg D407-667-245. Allow rivet to sit below surface to compensate for paint. 7- Scribe tube to identify on the inner chamfer in the cuff D# and B# 8-*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***Debur & Inspect for surface damage. Repair damage within limits as per Dwg D407-667-245								
	QC5- Inspect part completeness to step on W/O	0.00							
	Memo	0.00							
	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								

DAS
46
9-89

19/10/27.

DAS
38
9-89

OCT 2 8 2014

150

QC

Quality Control

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Item ID: D407-667-205RLC Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Aft Crosstube - High 407
Start Date: 9/25/2014 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 9/25/2014 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160		0.00							DAS 41 9-89
160						1			
HandFXtube	Memo	0.00							
Hand Finishing Crosstubes	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								14-10-28
	1- CLEAN CROSSTUBE WITH WASH'N WIPE								
180	Outsource process - NDT per QSI038 4.1	0.00							
180									
Outsource2	Memo	0.00							
Outsource process - NDT	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								
	Liquid Penetrant Inspection as per QSI 0380								
	Issue P/O: 26273 LPI as per ASTM 1417								
	Level 2 Attach copy of NDT results to work order								
190	Packaging	0.00							
190									
Packaging	Memo	0.00							
Packaging	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								
	Ensure copy of NDT results attached to work order.								

CL 14/10/29 ①

1R 8P/4-10-29

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Item ID: D407-667-205RLC

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Aft Crosstube - High 407

Stop

NS2

Start Date: 9/25/2014 Start Qty: 1.00

1

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp
Stamp
DAS
38
9-89

200

QC5- Inspect part completeness to step on W/O

0.00

200

QC

Memo

0.00

Quality Control

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

OCT 29 2014

204

0.00

204

HandFXtube

Memo

0.00

Hand Finishing Crosstubes

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

1- PRESSURE WASH AND THEN USE WASH'N WIPE TO CLEAN
CROSSTUBE BEFORE CHEMICAL CONVERSION

DAS
41
9-89

14-10-28

206

QC7-Inspect Chemical Conversion Coat

0.00

206

QC

Memo

0.00

Quality Control

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

DAS
38
9-89

OCT 29 2014

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Thursday, September 25, 2014 1:09:25 PM

Item ID: D407-667-205RLC

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Aft Crosstube - High 407

Start Date: 9/25/2014 Start Qty: 1.00

1

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

210

210

SprayPaint

SprayPaint

0.00

0.00

Memo

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Spray Painting

DAS

41

9-89

14-10-29

1-Prime inside and outside crosstube as per DEO D407-667-245 and QSI 005 4.2

PRIME: 129807

Start Time: 300

Finish Time: 340

Mask underside of crosstube as shown

2-Paint outside crosstube with White Imron as per QSI 005 4.2

PAINT: 130531

Start Time: 700

Finish Time: 745

3- Apply clear coat as per dwg

Clear Coat Batch: 130308

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Item ID: D407-667-205RLC

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: Aft Crosstube - High 407

Stop ***NS2***

Start Date: 9/25/2014 Start Qty: 1.00

1

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursTool ID Tool # Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

220

QC14- Inspect Spray Paint

0.00

220

QC

Memo

0.00

Quality Control

Then, Wrap in plastic bag to protect from scratches

38

9-89

14-11-24

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124889

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Item ID: D407-667-205RLC Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Aft Crosstube - High 407
 Start Date: 9/25/2014 Start Qty: 1.00 ***1*** Cust Item ID:
 Required Date: 9/25/2014 Req'd Qty: 1.00 ***1*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230	Crosstubes	0.00							
230									
Crosstubes	Memo	0.00							
Crosstubes	1- Install chafing shield as per DEO D407-667-245. Top holes should be facing up. A/R Proseal 890 Batch: <u>130 990</u> EXP: <u>1/15</u>								
	2- Lightly scuff the bonded area using a 320 grit sand paper and clean the area with 41058 wash 'n' wipe								
	3-Install support with Scotch-Weld DP460 and install clamps as per DEO Dwg D407-667-245 using installation jig DT9025. Torque clamps as per dwg A/R Scotch-Weld DP460 Batch: <u>m 129 294</u> EXP: <u>6/15</u> ***LET CURE FOR 24 HOURS*** CURE TIME: START: <u>14.10.31</u> FINISH: <u>14.11.02</u>								
	4-Install nut plates as per Dwg D407-667-245. Touch-up rivet heads with Imron paint.								

1 CL 14.10.31

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Item ID: D407-667-205RLC

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Aft Crosstube - High 407

Start Date: 9/25/2014 Start Qty: 1.00

1

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

NR1

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
240	QC5- Inspect part completeness to step on W/O	0.00							
240									
QC	Memo	0.00							
Quality Control	***RE-CHECK TORQUE ON CLAMPS AFTER ADHESIVE HAS CURE FOR 24HOURS AS PER DWG DEO***								
250	Pick Kit	0.00							
250									
Packaging	Memo	0.00							
Packaging									
260	QC4- 100% Inspect kits for completeness	0.00							
260									
QC	Memo	0.00							
Quality Control									

DAS
38
9-29

14-11-24

PTO
Last Page

N/A sel

DAS
06
9-29

DEC 30 2014

Work Order ID 124889

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Thursday, September 25, 2014 1:09:25 PM

Item ID: D407-667-205RLC

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Aft Crosstube - High 407

Start Date: 9/25/2014 Start Qty: 1.00

1

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

270

270

Packaging

Packaging

0.00

Memo

0.00

Identify and in kanban rack
Location: 093

DAS

46

8-89

DAS

66

8-89

DEC 30 2014

280

280

QC

QC21 - Final Inspection - Work Order Release

0.00

Memo

0.00

Quality Control

ML5

15-01-05

15-01-05

Picklist Print

Thursday, September 25, 2014 1:09:27 PM

Page 1

Work Order ID: 124889

124889

Parent Item: D407-667-205RLC

D407-667-205RI C

Parent Item Name: Aft Crosstube - High 407

Start Date: 9/25/2014

Required Date: 9/25/2014

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 14.09.24 NEW ISSUE II VERF:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D407-667-205TRN

Manufactured

No

110

Each

0.0000

Qty per Kit 1

Total Qty 1

JW 14.10.16

D407-667-205TRN

Crosstube Turning Detail

D2873-043

Manufactured

No

230

Each

44.0000

Qty per Kit 2

Total Qty 2

D2873-043

Nut Plate Assembly

Location

Loc Qty

Loc Code

LG052

44

107964

4

113050

32

114550

8

D2873-045

Manufactured

No

230

Each

47.0000

Qty per Kit 2

Total Qty 2

D2873-045

Nut Plate Assembly

Location

Loc Qty

Loc Code

LG052

47

113144

7

113886

40

D2894-1

Manufactured

No

230

Each

8.0000

Qty per Kit 1

Total Qty 1

D2894-1

2.75 Support

Location

Loc Qty

Loc Code

LG052

8

105623

6

113132

2

CR 14.10.30

CR 14.10.30

CR 14.10.30

Picklist Print

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Page 2

Work Order ID: 124889

Parent Item: D407-667-205RLC

Parent Item Name: Aft Crosstube - High 407

124889

D407-667-205RLC

Start Date: 9/25/2014

Required Date: 9/25/2014

Start Qty: 1.00

Required Qty: 1.00

D3190-1 Manufactured No

230 Each

13.0000

2

2

D3190-1

Chaffing Shield

**

(4)

CR 14.10.30

Location

Loc Qty

Loc Code

LG053

13

105834

3

109948

10

D3595-063-450

Manufactured No

230

Each

200.0000

2

2 2

D3595-063-450

Rubber Cushion

**

CR 14.10.30

Location

Loc Qty

Loc Code

FG

15

88422

5

94274

10

LG050

4

118828

4

LG051

181

109526

2

115083

72

115780

100

117650

7

MS20601-AD4W8

Purchased

No

230

Each

421.0000

14

14

MS20601-AD4W8

RIVET

**

CR 14.10.30

Location

Loc Qty

Loc Code

ST310

421

M126637

24

M127813

24

M128429

73

M128650

300

14

Thursday, September 25, 2014 1:09:27 PM

Shop Packet Print

Page 2

Picklist Print

Thursday, September 25, 2014 1:09:27 PM

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Work Order ID: 124889

Parent Item: D407-667-205RLC

Parent Item Name: Aft Crosstube - High 407

124889

D407-667-205RI C

Start Date: 9/25/2014

Required Date: 9/25/2014

Start Qty: 1.00

Required Qty: 1.00

MS21920-22

Purchased

No

230

Each

178.0000

4

4

MS21920-22

Clamp

CL 14.10.30

Location

Loc Qty

Loc Code

LG050

178

M127255

2

~~M128636~~

176

MS21920-25

Purchased

No

230

Each

93.0000

2

2

MS21920-25

Clamp

④

CL 14.10.30

Location

Loc Qty

Loc Code

FG

2

120920

2

LG050

91

M129592

2

M130279

14

~~M130286~~

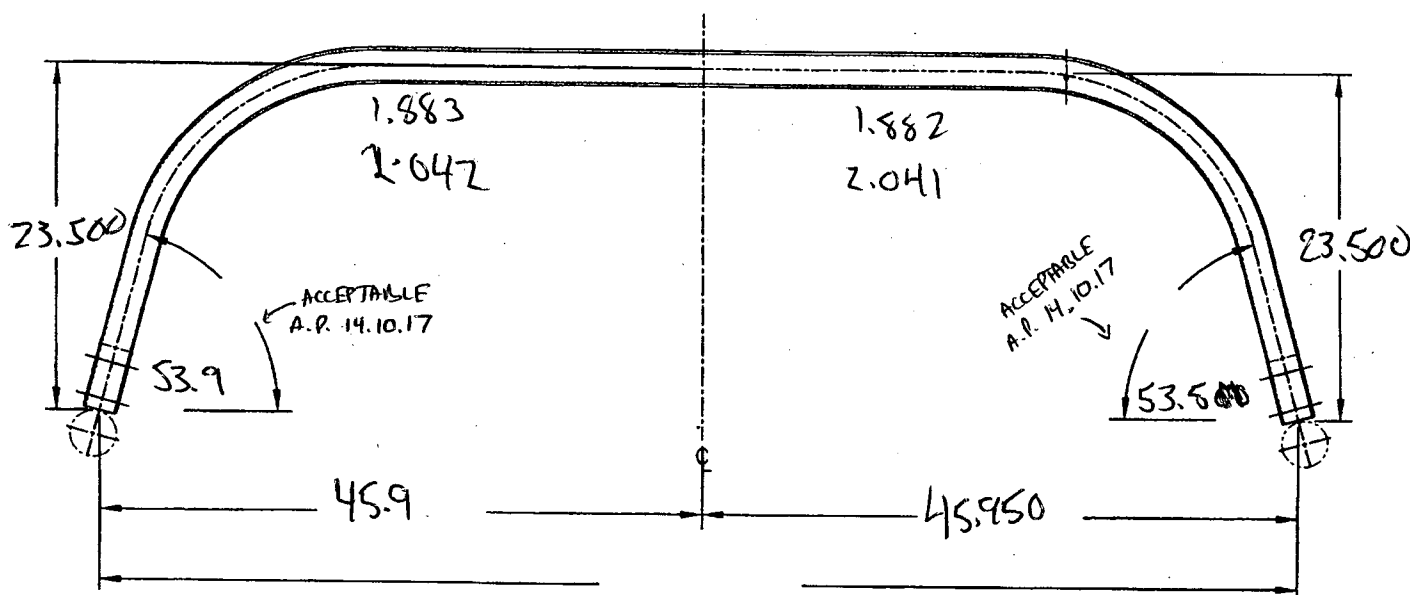
25

M130400

50

DART AEROSPACE LTD		Work Order:	124889
Description: Crosstube High Aft (407)		Part Number:	D407-667-205
Inspection Dwg: D407-667-245	Rev: F		Page 1 of 1

Required Dimension	Min	Max
Height	23.39	23.65
1/2 Span	45.79	46.05
Angle	54	56
Total Span	91.58	92.100
Bending Passes	6	--
Crushing	--	6%



	Side A	Side B
Bending Passes	28	29
Crushing	4.10%	4.10%
Comments		

QC15 Inspection	Date
	14-10-20

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.06.22	Dwg Rev updated	KJ	
C	11.08.22	Dimensions updated	KJ	
D	11.09.30	Dimensions updated	KJ	
E	12.04.16	Added bending, crushing dimensions	KJ	

Item	QTY -245	PART NUMBER	DESCRIPTION
1	X	D407-667-245	CROSSTUBE ASSEMBLY (407 HIGH AFT)
2	1	D6011-115	CROSSTUBE
3	2	D2856-400-773	ABRASION STRIP
4	2	D2873-043	NUT PLATE
5	2	D2873-045	NUT PLATE
6	1	D2894-1	SUPPORT
7	2	D3190-1	CHAFING SHIELD
8	2	D3595-063-430	RUBBER CUSHION
9	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
10	4	MS21920-22	CLAMP
11	2	MS21920-25	CLAMP (OR MS21920-24)
12	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947- 100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- MATERIAL: MANUFACTURED FROM D6011-115
FINISHED LENGTH = 112.91±0.020
- FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D407-667-245" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- WEIGHT: 27.7 lbs
- PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- INSTALL D2894-1 CENTER SUPPORT USING A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- INSTALL MS21920-25 CLAMPS WITH D3595-063-430 RUBBER CUSHIONS TO SECURE D2894-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE CROSSTUBE SUPPORT.
NOTE: MS21920-24 CLAMPS CAN BE USED TO ACCOMMODATE VARYING DIAMETERS. ENSURE THERE IS A MINIMUM OF 1.5 THREADS IN SAFETY ON THE NUTS.
- EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- INSTALL D2856-400-773 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, PER QSI 035.
- INSTALL D3190-1 CHAFING SHIELDS SO THAT OVERLAP IS ON BOTTOM SIDE OF CROSSTUBE OPPOSITE D2894-1 SUPPORT.
- TORQUE CLAMPS 80 TO 100 IN.-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

NO. 124889 MJS
14-09-25

@DEO ATTACHED

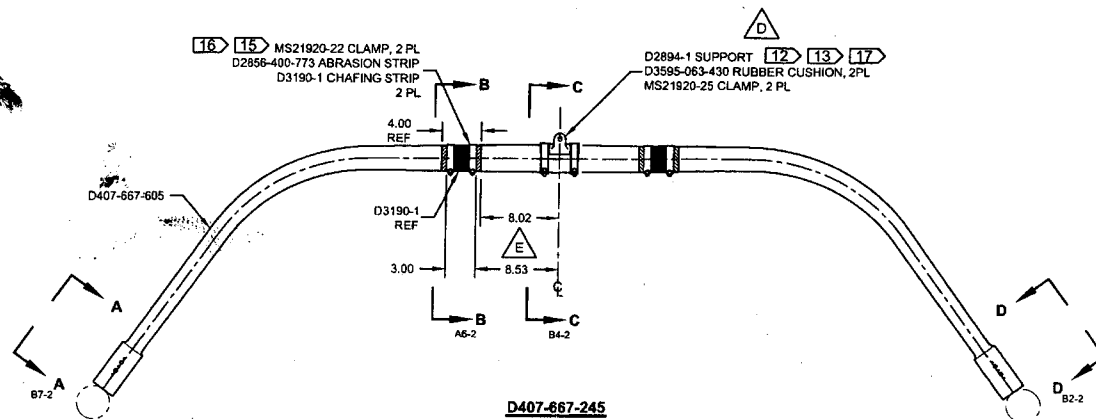
RELEASED
08/11/06

F	REFORMAT NOTES TO NEW STANDARDS (ZN BB-1); RELOCATED FLAG # 6 (ZN A8-3) PER NCR 210; REMOVED REF. & ADD TOLERANCES (ZN C6-3, C4-3 & D2-3)	RF	08.11.06
E	8.02 AND 8.53 WERE 8.40 AND 8.90 (ZN D5-2); REORGANIZED VIEWS AND REFORMATED DRAWING TO CURRENT STANDARDS. REASONS: CLAMPS MOVED 0.375 TOWARD CL TO ELIMINATE INTERFERENCE WITH AIRCRAFT MOUNTS. REFERENCE: FAR#08-21 AND ECR#1225	MB	08.07.24
D	ADD VIEW FOR OEM SKID HOLES, ROTATE ORIENTATION OF CLAMPS SECTION F-F, REMOVE -851 ABRASION STRIP, ADD MAGNOBOND 6398, ADD CUSHION	PH	07.02.07
C	ADD HOLES AND NUT PLATES FOR COMPATIBILITY WITH BHT/AA SKIDTUBES	PH	05.07.26
B	ADD CHAFING SHIELD	CP	03.05.21
A	NEW ISSUE	CP	02.05.13
REV.	DESCRIPTION	BY	DATE
DESIGN	9P		
DRAWN	RF		
CHECKED	9P		
MFG. APPR.	9P		
APPROVED	9P		
DE APPR.	9P		
DATE	08.11.06		

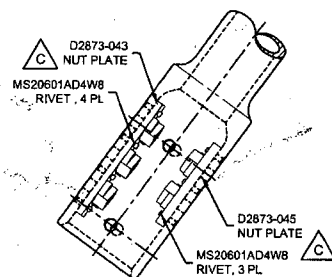
DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. REV. F
D407-667-245 SHEET 1 OF 4
TITLE SCALE
CROSSTUBE ASSY (407 HIGH AFT) NTS

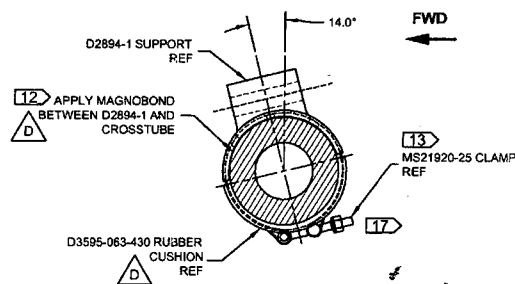
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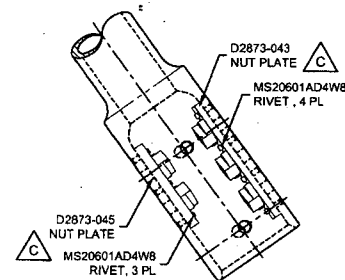
**D407-667-245
ASSEMBLY DETAIL
(VIEW LOOKING FWD)**



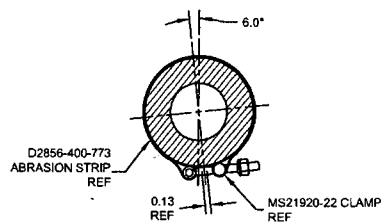
**VIEW A-A CUFF DETAIL
SCALE 4X**



**SECTION C-C
SCALE 4X**



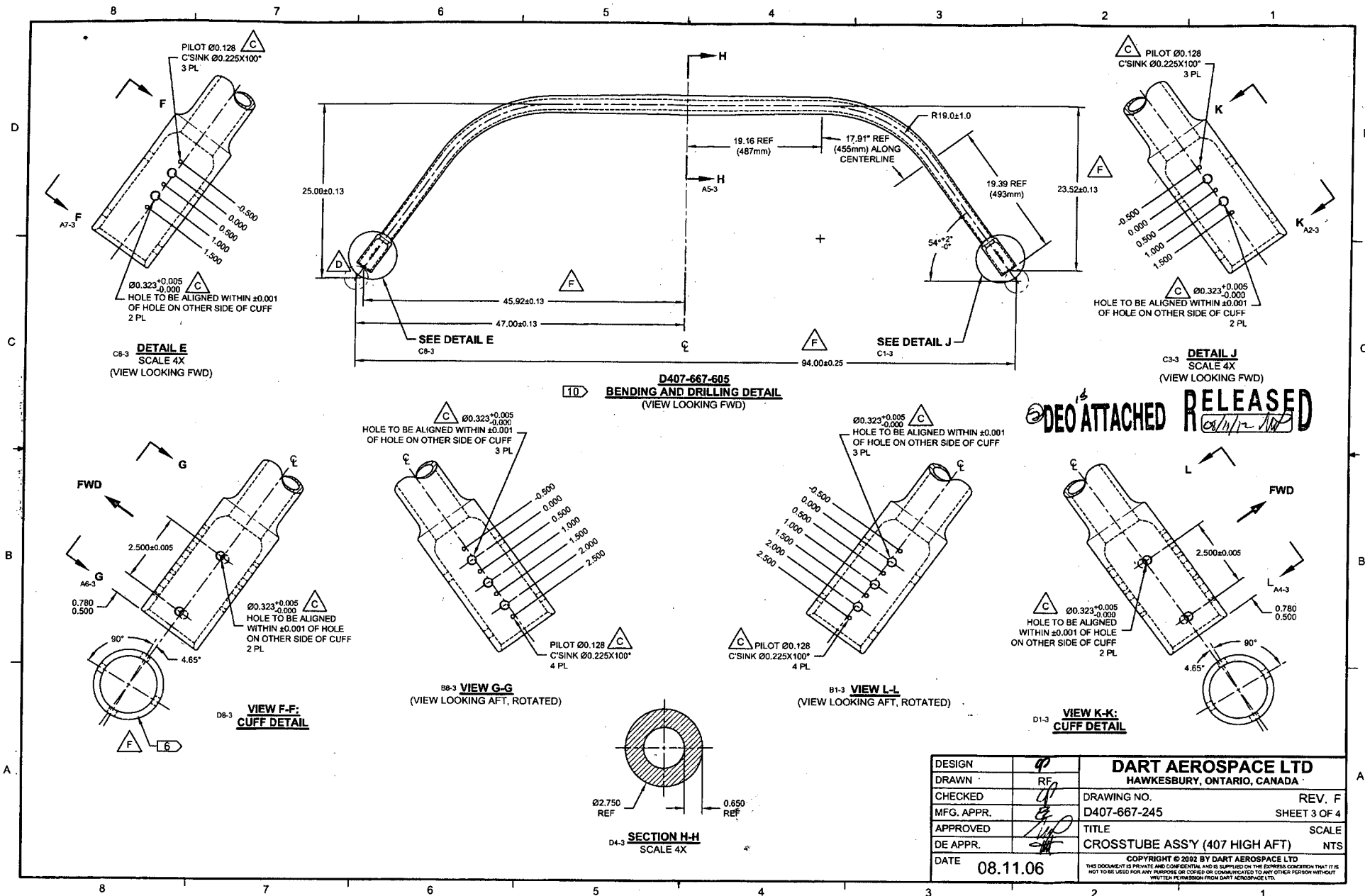
**VIEW D-D CUFF DETAIL
SCALE 4X**



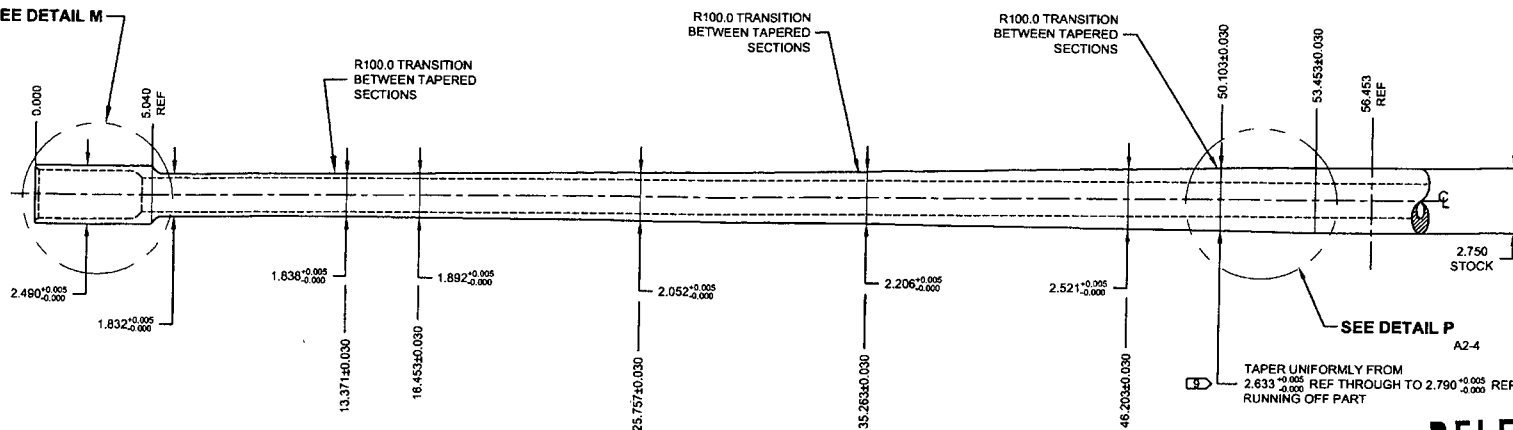
**SECTION B-B
SCALE 4X, 2PL**

**DEO ATTACHED
RELEASED**
02/11/12

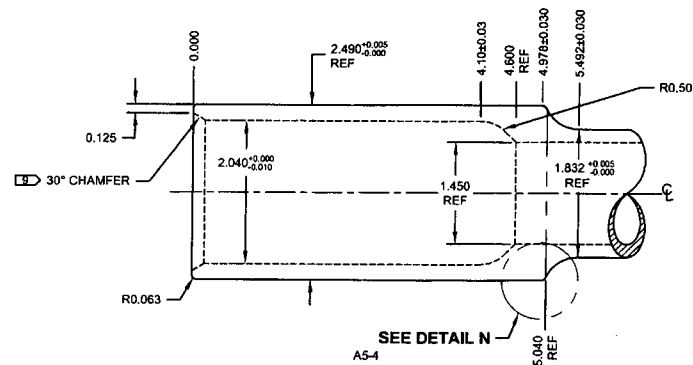
DESIGN	9	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	9	DRAWING NO.	REV. F
MFG. APPR	9	D407-667-245	SHEET 2 OF 4
APPROVED	9	TITLE	SCALE
DE APPR	9	CROSSTUBE ASS'Y (407 HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2002 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



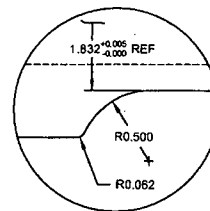
SEE DETAIL M
A7-4



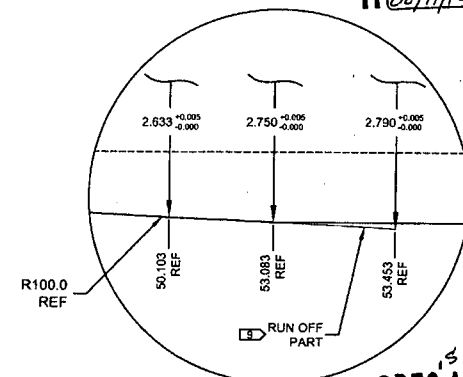
D407-667-245 MACHINING DETAIL



DETAIL M: CROSSTUBE CUFF
SCALE 3X



DETAIL N: CUFF TRANSITION
SCALE 2X



DETAIL P: TAPER RUN-OFF
NOT TO SCALE

RELEASED
08/11/12

DEO'S ATTACHED

DESIGN	90	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	90	DRAWING NO.	REV. F
MFG. APPR.	90	D407-667-245	SHEET 4 OF 4
APPROVED	90	TITLE	SCALE
DE APPR.	90	CROSSTUBE ASS'Y (407 HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2002 BY DART AEROSPACE LTD	
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DRAWING NO. D407-667-245	TITLE CROSSTUBE ASSY (407 HIGH AFT)	REV. F	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D407-667-245-F-1	SHEET NO. SHEET 1 OF 2	SCALE NTS
DRAWN	CHECKED	MFG. APPR.	APPROVED	DE APPR.			
DATE 11.04.08	DATE 11.04.12	DATE 11.04.12	DATE 11.04.12	DATE 11.04.12			

PURPOSE:

REMOVED ABRASION STRIP IN FAVOR OF A THIN LAYER OF PROSEAL 890.

CHANGE:

PARTS LIST IS AMENDED AS FOLLOWS:

IS:

Item	Qty -245	Part Number	Description
3	0	D2856-400-773	ABRASION STRIP

WAS:

3	2	D2856-400-773	ABRASION STRIP
---	---	---------------	----------------

NOTES 2 AND 16, SHEET 1 ARE AMENDED AS FOLLOWS:

IS:

- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
MASK UNDERSIDE OF CROSSTUBE AS SHOWN (HATCHED AREA) AND
PAINT OUTSIDE PER DART QSI 005 4.2
REMOVE MASKING AND APPLY CLEAR COAT
- 15) APPLY A THIN COAT OF PROSEAL 890 ON INSIDE CONCAVE SURFACE OF D3190-1
CHAFING SHIELDS AND LET CURE PER MANUFACTURER'S INSTRUCTIONS. INSTALL
PROSEALED D3190-1 CHAFING SHIELDS ONTO CROSSTUBE BY APPLYING A THIN COAT
OF PROSEAL 890 ONTO CROSSTUBE. BE SURE TO ELIMINATE ANY AIR GAPS.

WAS:

- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 15) INSTALL D2856-400-773 ABRASION STRIP WITH A 0.13 REF GAP ON BOTTOM SIDE OF
CROSSTUBE PER QSI 035.

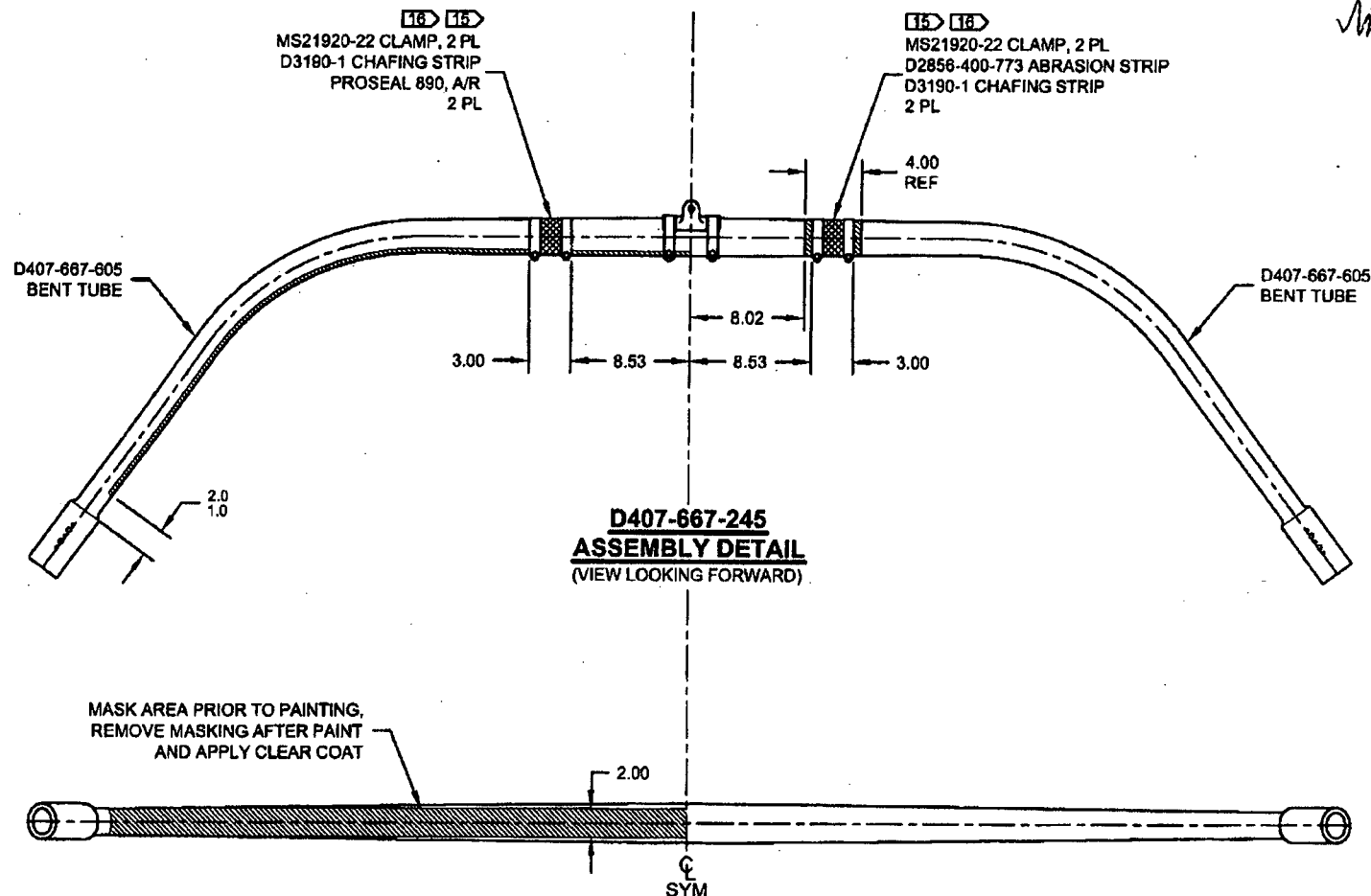
RELEASED
2011-04-18
MA

DRAWING NO. D407-667-245	TITLE CROSSTUBE ASSY (407 HIGH AFT)	REV. F	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D407-667-245-F-1	SHEET NO. SHEET 2 OF 2	SCALE NTS
DRAWN	CHECKED <i>op</i>	MFG. APPR. <i>RE</i>	APPROVED <i>MP</i>	DE APPR. <i>th</i>		
DATE 11.04.08	DATE 11.04.11	DATE 11.04.12	DATE 11/04/12	DATE 11.04.12		

IS:

WAS:

RELEASED
2011-04-18



DRAWING NO. D407-667-245	TITLE CROSSTUBE ASS'Y (407 HIGH AFT)	REV. F	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D407-667-245-F-2	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN 97	CHECKED ASS	MFG. APPR. E	APPROVED MP		DE APPR. H		
DATE 11.09.07	DATE 11.09.15	DATE 11.09.19	DATE 11.09.19		DATE 11.09.19		

PURPOSE:

REPLACE MAGNOBOND WITH 3M DP460 SCOTCH-WELD EPOXY ADHESIVE

CHANGE:

IS:

Item	Qty -245	Part Number	Description
12	A/R	SCOTCH-WELD DP460	EPOXY ADHESIVE, 3M SCOTCH-WELD

WAS:

12	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
----	-----	----------------	---

NOTE 12 & 17, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) INSTALL D2894-1 CENTER SUPPORT USING A 0.04" TO 0.07" THICK LAYER OF SCOTCH-WELD DP460 PER QSI 015. LET CURE FOR 24 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER ADHESIVE HAS CURED FOR 24 HOURS.

WAS:

- 12) INSTALL D2894-1 CENTER SUPPORT USING A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
2011-09-29
MP



skyservice Work Order Traveler

Sky Service F.B.O. Inc.

DOT APP 53-89 / EASA 145.7142 / BDA AMO 385

WO #: MWO22577	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: 26273
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:

CARRY OUT NDT INSPECTION (LIQUID PENETRANT) ON 17 CROSSTUBES

ITEM ID: D212-664-101 FWD CROSSTUBE - HIGH

- 1 - WORK ORDER ID#: 124665
- 2 - WORK ORDER ID#: 124667
- 3 - WORK ORDER ID#: 124664
- 4 - WORK ORDER ID#: 124666
- 5 - WORK ORDER ID#: 124061

ITEM ID: D212-664-201 AFT CROSSTUBE - HIGH

- 5 - WORK ORDER ID#: 124061
- 6 - WORK ORDER ID#: 124060
- 7 - WORK ORDER ID#: 124059

ITEM ID: D407-667-205RLC AFT CROSSTUBE - HIGH 407

- 8 - WORK ORDER ID#: 124889
- 9 - WORK ORDER ID#: 124891
- 10 - WORK ORDER ID#: 124890

8014-10-29

ITEM ID: D350-748-101 FWD CROSSTUBE

- 11 - WORK ORDER ID#: 122970
- 12 - WORK ORDER ID#: 110732
- 13 - WORK ORDER ID#: 111492

ITEM ID: D350-748-201 AFT CROSSTUBE

- 14 - WORK ORDER ID#: 113064
- 15 - WORK ORDER ID#: 110107
- 16 - WORK ORDER ID#: 113066
- 17 - WORK ORDER ID#: 113065

Action Taken:	Date:	Initial/Stamp:
LIQUID PENETRANT INSPECTION CARRIED OUT ON ITEMS LISTED ABOVE (ITEMS 1-17) AS PER ASTM1417M-13 NO CRACK FOUND Pen: ZL-56 BATCH# 09H094 EXP. DATE: AUG 2014, DEV: SKD-S2 EXP. DATE: OCT2017 CLEANER: SKC-S EXP. DATE: APR 2018	OCT 20 2014	 b

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature:	ACA/SCA Stamp	Date:
Name: ANTONINO MARCHETTA		OCT 20 2014

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO26273

Purchase Order Date 10/28/2014

PO Print Date 10/29/2014

Page Number 7 of 8

Order From :

VC-SKY001

Ship To : DART AEROSPACE LTD

SKYSERVICE
6120 MIDFIELD ROAD
MISSISSAUGA, ONTARIO L5P 1B1
CANADA

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone

905-678-5636

Ship To Contact

Ship To Phone

Ship Via:

Delivered

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax #

10127-2607

Terms

Net 30

Currency

CAD

FOB

FCA - (Free Carrier)

Line Total:

\$98.

18 124889

D407-667-205RLC
CROSSTUBE

10/29/2014

1.00

\$98.53

\$98.

Yes

4 7:07:00 AM

AS ABOVE

Line Total:

\$98.

19 122754

D3691-1 STUD

10/29/2014

6.00

\$16.42

\$98.

Yes

4 7:07:00 AM

AS ABOVE

Line Total:

\$98.

20 122864

D3688-1 STUD

10/29/2014

4.00

\$24.63

\$98.

Yes

4 7:07:00 AM

AS ABOVE

Line Total:

\$98.

Note:

10/29/2014

DQA: ADT Date: 15/03/20

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: RJW Date: 15/03/20Work Order update only ☐

Work Order: <u>124885</u>	DISPOSITION Rework ☒ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Crosstube ☒ Water Jet ☐ Engineering ☐ Machining ☐ Small Fab ☐ Prod. Eng. Coord. ☐ Quality ☐ Thermoforming ☐ Finishing ☐ Rec/Store/Packaging ☐ Other ☐ Large Fab ☐ Composite ☐ Supplier ☐			
Part No. <u>D407667-205 RLC</u>						
NCR No. <u>15-4687</u>						

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design ☐	<u>14/11/18</u>	<u>#100</u>	<u>x1</u>	Cheffing shield seam is facing fwd (dmg is not clear) RC Drawing + DATA (work order/initiations) Not clear. PAR #15. to change Drawing create.	<u>AS2042</u> <u>15/11/26</u>	Reposition cheffing shield so seam faces aft	<u>EL 14/11/18</u>	<u>DAS 30 9-89</u>	<u>DAS 9 9-89</u> <u>15-01-26</u>
Doc/Data ☒						ADD note on workorder to position "overhang" AFT.	<u>Craig</u>	<u>14-11-24</u>	
Equip/Tooling ☐							<u>Steve Gaurvian</u>	<u>15.01.27</u>	
Handling/Pre ☐									
Material ☐									
Operator ☐									
Offset/Setup ☐									
Process ☐									
Supplier ☐									
Training ☐									
Transport ☐									
Unapproved ☐									

FAULT CATEGORY

Landing Gear	General		
☐ Bending	☐ Bend	☐ Folio/Program	☐ Outside Dimensions
☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance
☐ Cracks	☐ Broken/Damage/Defect	☐ Hardware	☐ Part Incorrect
☐ Crimp/Kink/Ripple/Wave	☐ Burrs	☐ Inspection Incomplete/Unqualified	☐ Part Lost/Missing
☐ Cuffs	☐ Contamination	☐ Instructions Incomplete/Unclear	☐ Part Moved
☐ Crushing	☐ Countersink	☐ Misaligned/off center	☐ Positioned Wrong
☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled	☐ Power Loss/Surge
☐ Inspection Strip in Tube	☒ Drawing	☐ Misread	☐ Pressure/Forced
☐ Marks/Chatter	☐ Drill Holes	☐ Off-set	☐ Set-up
☐ Turning Sequence	☐ Finish	☐ Out of Calibration	☐ Temperature/Cure
☐ Wave/Twist in Tube	☐ Fit/Function	☐ Out of Sequence	☐ Weld
			☐ Wrong Stock Pulled
			☐ Other